Claims:

A listing of the claims has been included for reference. Claims 6, 18, and 24 have been amended. Claims 5, 17, 23, and 35-40 have been previously cancelled.

Listing of Claims:

1. (Previously Presented) A method, comprising:

partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;

determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries; and

if the cross-access scenario exists, permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

2. (Original) The method as claimed in claim 1, further comprising allocating the one or more special-purpose entries based on the particular stream ID and a particular input address.

3. (Original) The method as claimed in claim 2, further comprising

storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

4. (Original) The method as claimed in claim 3, further comprising

determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and

using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.

5. (Cancelled)

6. (Currently Amended) The method as claimed in claim **4** **5**, wherein the one or more streams are special-purpose streams including graphics streams.

7. (Previously Presented) A device comprising:

a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated

for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;

control logic to determine if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries; and

if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

8. (Previously Presented) The device as claimed in claim 7 further comprising:

the control logic to allocate the one or more special-purpose entries based on the particular stream ID and a particular input address.

9. (Original) The device as claimed in claim 8, wherein the control logic further comprises:

special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

10. (Original) The device as claimed in claim 9, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address; and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

11. (Original) The device of claim 10, further comprising a DRAM controller integrated with the cache memory array.

12. (Original) The device of claim 11, further comprising an integrated graphics controller, a host AGP controller, and an I/O hub interface coupled to the DRAM controller.

13. (Previously Presented) A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions when executed by a computer, cause the computer to perform the method comprising:

partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;

determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries; and

if the cross-access scenario exists, permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

14. (Original) The computer-readable medium of claim 13 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of allocating the one or more special-purpose entries based on the particular stream ID and a particular input address.

15. (Original) The computer-readable medium of claim 14 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of

storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

16. (Original) The computer-readable medium of claim 15 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of

determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and

using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.

17. (Cancelled)

18. (Currently Amended) The computer-readable medium of claim **16** ~~17~~, wherein the one or more streams are special-purpose streams including graphics streams.

19. (Previously Presented) A system, comprising:

means for partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein the special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;

means for determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries; and

if the cross-access scenario exists, means for permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

20. (Original) The system as claimed in claim 19, further comprising

means for allocating the one or more special-purpose entries based on the particular stream ID and a particular stream address.

21. (Original) The system as claimed in claim 20, further comprising

means for storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

means for storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

22. (Original) The system as claimed in claim 21, further comprising

means for determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and

means for using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.

23. (Cancelled)

24. (Currently Amended) The system as claimed in claim **22** ~~23~~, wherein the one or more streams are special-purpose streams including graphics streams.

25. (Previously Presented) A system, comprising:

a system memory controller, comprising

a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;

control logic, coupled to the cache memory array, the control logic to determine if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries;

if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario;

and system memory connected to the system memory controller.

26. (Previously Presented) The system as claimed in claim 25, further comprising one or more interfaces connected to the system memory controller, including

an I/O hub interface connected to a bus,

a processor interface; and

a host AGP controller connected to the system memory controller via the bus; wherein the cache array receives the cache operation requesting data via the one or more interfaces, and returns a cache hit in response to the cache operation, wherein the cache has a pending fetch for the data in response to a prior cache operation requesting the data.

27. (Previously Presented) The system as claimed in claim 26, wherein the processor interface connects to a processor of a plurality of processors, the plurality of processors including a 16 bit processor and a 64 bit processor.

28. (Previously Presented) The system as claimed in claim 25, wherein the control logic further comprises:

special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

29. (Previously Presented) The system as claimed in claim 28, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address;

and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

30. (Previously Presented) A device, comprising:

a hub interface to use with a 64-bit processing architecture;

a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries; and

control logic to

allocate the one or more special-purpose entries based on a particular stream ID and a particular input address, wherein the stream ID is stored outside the cache array;

determine if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries;

if the cross-access scenario exists, permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

31. (Previously Presented) The device as claimed in claim 30, wherein the control logic further comprises:

special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

32. (Previously Presented) The device as claimed in claim 31, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address; and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

33. (Previously Presented) The device of claim 32, further comprising a DRAM controller integrated with the cache memory array.

34. (Previously Presented) The device of claim 32, further comprising an integrated graphics controller, and a host AGP controller.

35-40. (Cancelled)